One further perceived that the removal of highly ferruginous slags from the furnace involved not only the corresponding loss of iron from the ore, bat a diminution of the growth of the charge which the reducing agents, were capable of producing. Slag drawn off contains iron principally in the form of the protoxide, which is formed from the iron peroxide added, as a corresponding portion of the reducing agents of the metal are oxidised, which naturally readily are lost; that is to say, a charge shrinkage must result. Charge growth can only result if the protoxide is reduced to metal. Therefore, iron protoxide only is the truly valuable oxidising agent for the open-hearth process, which, aftor it is once produced at a sacrifice in the furnaces, should now be also completely utilised. On this ground then (in opposition to the remaining known processes) measures should be found which are capable of preventing a loss of such ferruginous slags.

The process was generally carried out by employing 20 tons of molten charges in furnaces built for 25 tons for the pig and scrap process. In the result, increasing the depth of the bath by raising the ports and door openings was resorted to, and thereby brought the capacity of the furnaces to 30 tons of molten pig iron without alteration of the dimensions of the regenerator chambers.

At the beginning of the process the requisite additions of limestone and ore were first brought into the furnace, and the door sills heaped up so high with -coarsely-ground limestone, that the frothing over of the bath by lively reactions was not to be feared. With as little loss of time as possible then, molten pig iron was poured into the furnace, thereby avoiding a more intense preheating of the ore. Forthwith, on contact of the molten pig iron, the exothermic reactions ensued, and indeed so quietly that production of the flame was not checked. After a short time, the carbon elimination set in, ultimately growing up to full intensity. The slag rose up and became frothy, and from its upper surface carbon-monoxide gas issued on a large scale. One could thereby very well observe the influences which on the one hand from the formation of carbon-monoxide from the bath, on the other hand from the pressure of the flame gases in the combustion chamber of the